

A Cambridge Wireless Radio Technology SIG Event**'Wi-Fi 7'****Tuesday 8th April 2025****Kindly hosted by Department of Computer Science and Technology, University of Cambridge****This SIG is championed by Mark Beach, University of Bristol, Brian Collins, BSC Associates, Paul Harris, VIAVI Solutions, Peter Kibutu, TTP plc & Peter Topham, Qualcomm Technologies International****Venue:** Department of Computer Science and Technology, 15 JJ Thomson Avenue, Cambridge, CB3 0FD**WIFI:** To access the free Wi-Fi simply join the 'wgb' network**Agenda****14:00 Registration and networking over tea & coffee****14:30 Welcome from Cambridge Wireless**
Michaela Eschbach, CEO of Cambridge Wireless**14:35 Welcome from our host**
Dr Ian Wassell, Department of Computer Science and Technology, University of Cambridge**14:40 Session Chaired by Peter Topham, Qualcomm Technologies International & CW SIG**
Champion**14:45 'Wi-Fi - Navigating a complex spectrum and regulatory environment'**
Tony Lavender, Senior Advisor, Plum Consulting

Since initial developments in the 1990s using 2.4 GHz spectrum, WiFi has evolved to become a ubiquitous part of electronic communications. Each step along the way has required identification of new radio frequencies capable of being operated in a licence exempt mode and setting the regulatory conditions for use of these. While in the early days there was a high level of commonality, now with use of the 5 GHz and 6 GHz bands there are regional variations in the spectrum available, permissible power levels, technology solutions required to reduce interference risk and enable operation and other restrictions that might be applied. These developments impose both complexity and cost for current and future WiFi developments. In this presentation a brief history of the spectrum and regulatory environment for WiFi is covered together with current work on frequency bands and permissible use.

15:15 Q&A**15:20 Networking over refreshments****15:50 'WiFi-7'**
Richard van Nee, Senior Director, Qualcomm International Technologies

An overview is given of physical layer developments in WiFi that started 26 years ago with single-carrier CCK modulation while the latest WiFi-7 standard uses MIMO-OFDM with new features such as 320MHz and 4K-QAM. Besides data transmission, there is a growing interest to use WiFi for different applications such as positioning and sensing which are also addressed in this talk.

16:20 Q&A**16:25 'Key technology enhancements and real-world performance measurements in the evolution to Wi-Fi 7'****Jonathan Borrill, CTO, Anritsu**

An overview of the key performance enhancements in the evolution to WiFi-7 will be given, together with the related verification methods and test configurations. Examples of real-world performance verification challenges and results will be shown, and the underlying causes and mitigations will be discussed.

16:55 Q&A**17:00 Closing remarks & event end**

With the permission of the speakers, presentations will be available by request the day following the event

Profile of Organiser

Cambridge Wireless - www.cambridgewireless.co.uk

Cambridge Wireless (CW) is a global not-for-profit membership organisation at the forefront of innovation in connectivity and digital technology. Since 2000, CW has united industry leaders across connected devices, networks, software, data analytics, telecoms, satellites, and more. We bring together leaders, innovators, and experts through a range of initiatives designed to foster collaboration, drive innovation, and support professional growth. From flagship conferences and networking events to strategic innovation projects and skills development, our programmes create valuable opportunities for our members.

Profile of Host

Department of Computer Science and Technology, University of Cambridge - www.cst.cam.ac.uk

The Department of Computer Science and Technology (formerly known as the Computer Laboratory) is the academic department within the University of Cambridge that encompasses Computer Science, along with many aspects of Technology, Engineering and Mathematics. At present there are about 380 undergraduate students and 107 Master's students here. A further 180 postgraduates are engaged in research for the PhD. We offer a world-class research facility combining theory with practical activities and significantly advancing both the field and computing in the wider world. The Department sustains active research across the breadth of computer science and encourages the development of new technologies and applications. Professor Alastair Beresford is our Head of Department.

The Radio Technology Group SIG

The Radio Technology SIG aims to increase the awareness of the scientific and engineering limits on radio communications; and the opportunities that could be exploited to improve the state-of-the-art. It is championed by:

- **Mark Beach, University of Bristol** www.bristol.ac.uk/engineering/research/csn/
- **Brian Collins, BSC Associates** - www.bscassociates.co.uk
- **Paul Harris, VIAVI Solutions** - www.viavisolutions.com
- **Peter Kibutu, TTP plc** - www.ttp.com
- **Peter Topham, Qualcomm Technologies International** - www.qualcomm.com

For more information please visit: <https://www.cambridgewireless.co.uk/special-interest-groups/radio-technology.html>

Profile of Speakers

Tony Lavender, Senior Advisor, Plum Consulting - www.plumconsulting.co.uk

Tony Lavender is a Senior Advisor at Plum Consulting. He has more than 40 years experience in technology, communications regulation, policy and spectrum management. His clients include governments, equipment vendors, network operators and regulators. Tony was a specialist adviser to the UK Parliament 2016 Culture, Media and Sport Committee Inquiry into "Establishing world class connectivity throughout the UK", he chairs the spectrum value and efficiency group of the UK Spectrum Policy Forum and he was a member of the UK Government's Expert Panel, established as part of the UK Spectrum Strategy, on "Incorporating Social Value into Spectrum Allocation Decisions". He has worked on a wide range of studies including on the mmWave ecosystem, spectrum sharing, spectrum valuation and more broadly on electronic communications infrastructure strategy. Tony is a Chartered Engineer and a member of the UK Institution of Engineering and Technology.

Richard van Nee, Senior Director, Qualcomm International Technologies, www.qualcomm.com

Richard van Nee received the PhD degree from Delft University of Technology in 1995. From 1995 to 2000, he worked for Lucent Technologies Bell Labs where he invented the CCK codes that are used in IEEE 802.11b and developed the OFDM-based proposal that was adopted in IEEE 802.11a. In 2001, he cofounded Airgo Networks – acquired by Qualcomm in 2006 – that developed the first MIMO-OFDM modem for wireless LAN which formed the basis of 802.11n. Together with Ramjee Prasad, he wrote a book on OFDM, entitled 'OFDM for Mobile Multimedia Communications.' He is currently a Senior Director at Qualcomm where he is working on WiFi algorithm design and new 802.11 standards.

Jonathan Borrill, CTO, Anritsu - www.anritsu.com

Jonathan has over 30 years' experience in the area of advanced RF and wireless signalling systems. After graduating from Southampton University (UK) in electronic engineering, Jonathan worked for the UK Ministry of Defence (now Qinetiq) developing advanced millimetre wave communications systems. After a stint at Motorola as application engineering manager, in 2001 he moved to Anritsu. There, after performing business development and management roles for the EMEA region, he was appointed as Head of Global Market Technology for the corporate T&M business. Jonathan is a full member of the Institute of Engineering and Technology and a Chartered Engineer.

Profile of Display table

Anritsu - www.anritsu.com

Anritsu Corporation (www.anritsu.com) is a global provider of innovative communications test and measurement solutions for 130 years. Anritsu's philosophy engages customers as true partners to help develop wireless, optical, microwave/RF, and digital solutions for R&D, manufacturing, installation, and maintenance applications, as well as multidimensional service assurance solutions for network monitoring and optimization. Anritsu also provides precision microwave/RF components, optical devices, and high-speed electrical devices for communication products and systems. The company develops advanced solutions for 5G, M2M, IoT, as well as other emerging and legacy wireline and wireless communication markets. With offices throughout the world, Anritsu has approximately 3,500 employees in over 90 countries.

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| David Atkins | 3adesign Ltd |
| Sophie Barc | Anritsu EMEA Ltd |
| Erdal Berk | MediaTek |
| David Biggs | BT |
| Peter Borowski | U-blox |
| Jonathan Borrill | Anritsu |
| David Brown | Futurehand Media |
| Ruth Brown | Heavy Reading |
| Sabrina Cavallini | CGI UK |
| Rick Chandler | Communications Management Association |
| Phil Claridge | Mandrel Systems |
| Brian Collins | BSC Associates |
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| Michael Davies | UK NACE |
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| Michael Nedzelsky | Diffblue Ltd |
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